BRIEF DESCRIPTIONS OF DRAWINGS

Figure 1: Pneumatic Pack Off System and Apparatus with measurement, control, communications, and automation features being used for a wireline job.

1 Service rig mast
2 Pack off head with dual pneumatic and hydraulic capability
3 Compressed air hose connection to pack off head
4 Pack off head bleed off apparatus/pressurizing agent expulsion apparatus
5 Specialised stubby pipe joint
6 Lubricator pipe joint
7 Specialised flange pipe joint
8 Blow out prevention system
9 Pipes directed to tap into resources
10 Ground surface or water bed surface
11 Compressed air hose directing pressure or releasing pressure from the Pack off head
12 Gauge display mechanism for reading measurement of pressure applied that is communications capable and is sending measurement data to a computer in the operators cab
13 Wireline Personnel
14 Wireline materials leading to and being inserted into or withdrawn from pack off apparatus and system of pipes

15 Communications cable and pack off hose with communications cable leading to the operators cab and computer system

16 Wireline personnel manually applying or releasing pressure to the pack off apparatus.

17 Mechanism for manual or automated application or release of pressure to the pack off apparatus

18 Communications cable to further apparatus/computer that analyses new applied pressure data

19 Communications cable to the operators console and computer system

20 Air compressor

21 Spool of wireline materials leading to and being inserted into or withdrawn from pack off apparatus and system of pipes

22 Operators console

23 Wireline operator

24 Wireline Computer terminal

25 Laptop attached to wireline computer terminal with software with programmed parameters for analysis and instruction transmission/display for manual or automated control of pressure.

26 Operators Cab

27 Wireline Truck

Figure 2: Pneumatic Pack Off Head operated internally by air bag to move chamber like a piston squeezing rubber between bushing forming a seal against wireline and inner annulus.

1. wireline cable
2. pack off head entry annulus
3. top of pack off head
4. outer pack off head wall
5. inner pack off head chamber annulus
6. nib for bleeding off air pressure
7. bleed off valve and bleed off hose attachment
8. air bag
9. inner pack off head chamber annulus wall
10. spring that exerts pressure upwards on pack off head annulus chamber
11. bushing wrapped around wireline cable between rubber and base of pack off annulus piston chamber
12. rubber wrapped around wireline cable and between two brass bushings
13. spin on screw ring for attachment to stubby
14. bottom bushing wrapped around wireline cablethat lodges against stubby under rubber
15. annulus wall that rubber expands against under compression to form variable seal
16. inner pack off head chamber annulus wall
17. inner pack off head chamber annulus
18. air bag
19. attachment and valve for receiving pressurized air
20. view of air bag on the other side of wireline cable and annulus chamber wall

Figure 3: Dual capability Pneumatic and Hydraulic Pack Off Head operated internally by air bag or downwardly directed hydraulic pressure to move chamber like a piston squeezing rubber between bushing forming a seal against wireline and inner annulus.

1. wireline cable
2. pack off head entry annulus
3. top of pack off head
4. pack off head outer wall
5. side view of pack off head outer wall
6. inside view of outer wall of pack off head
7. nib for hydraulic hose attachment and receiving and releasing hydraulic fluid under pressure
8. hydraulic valve
9. wall of innermost annulus of pack off head through which the wireline passes
10. spring that exerts upward pressure on pack off head piston
11. spin on screw ring for attachment to stubby
12. bottom bushing wrapped around wireline cable that lodges against stubby under rubber
13. rubber wrapped around wireline cable and between two brass bushings
14. bushing wrapped around wireline cable between rubber and base of pack off annulus piston chamber
15. bottom wall of pack off head piston chamber annulus
16. chamber housing air bag
17. air bag
18. connector for air hose
19. air hose valve
20. outer wall of pack off head and inner wall of air bag chamber
21. wall that separates the air bag chamber from the hydraulic pressure chamber

Figure 4: Pneumatic Pack Off Head operated internally by air bag that applies pressure when inflated to a rubber at its center that forms a variable seal against materials passing through it.

1. top of pack off head
2. pack off head entry annulus
3. outer wall of pack off head
4. inside view of innermost annulus wall of pack off where material passes through
5. pack off rubber attached by adhesive or sewn to airbags inner annulus
6. nib for bleeding off air pressure
7. valve that bleed off hoses attach to
8. wall of air bag
9. inside of air bag slightly inflated
10. spin on ring for attachment to stubby
11. valve and connector for receiving air hose and air pressure.
12. annulus chamber that houses air bag